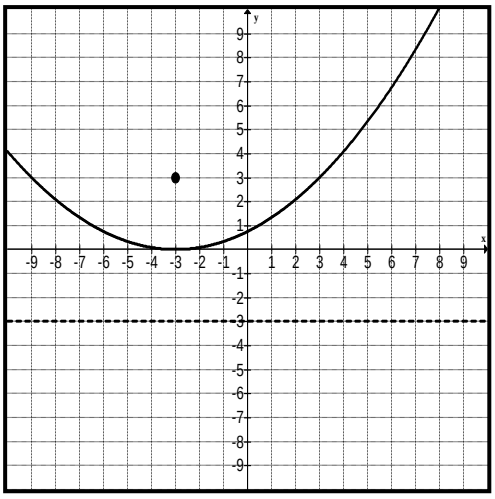
PAP PreCal – Unit 5: Conics

Practice – Parabolas

Name _____ Date _____ Period _____

1. Given the graph, write the equation of the parabola and find all the critical values.



Vertex: _____

Focus: _____

Directrix: _____

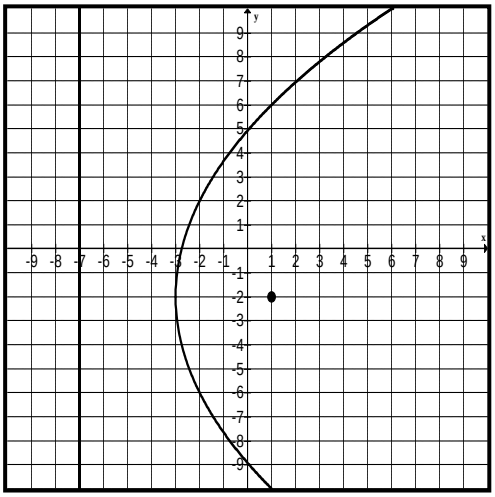
Axis of symmetry: _____

Equation: _____

Domain: _____

Range: _____

2. Given the graph, write the equation of the parabola and find all the critical values.



Vertex: _____

Focus: _____

Directrix: _____

Axis of Symmetry: _____

Equation: _____

Domain: _____

Range: _____

Find the critical values for each parabola and then graph.

3. $(y-1)^2 = 4(x+3)$

Vertex: _____

Value of *c*: _____

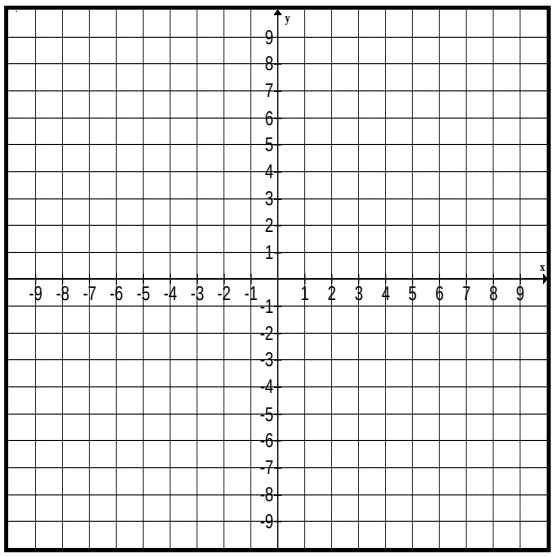
Focus: _____

Directrix: _____

Axis of Symmetry: _____

Domain: _____

Range: _____



4. $(x-3)^2 = 4(y+6)$

Vertex: _____

Value of *c*: _____

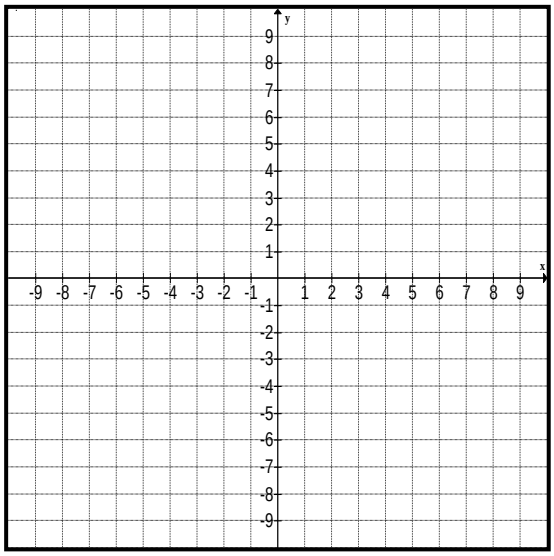
Focus: _____

Directrix: _____

Axis of Symmetry: _____

Domain: _____

Range: _____



5. $y - \frac{1}{8}x^2 = 0$

Vertex: _____

Value of *c*: _____

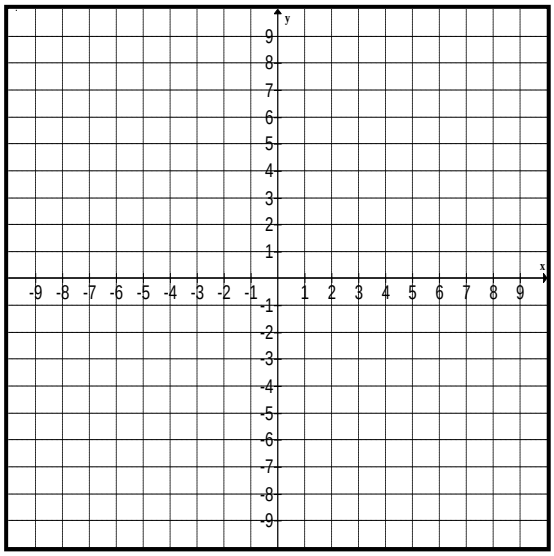
Focus: _____

Directrix: _____

Axis of Symmetry: _____

Domain: _____

Range: _____



6. $\frac{1}{8}(y+3)^2 - 5 = x$

Vertex: _____

Value of *c*: _____

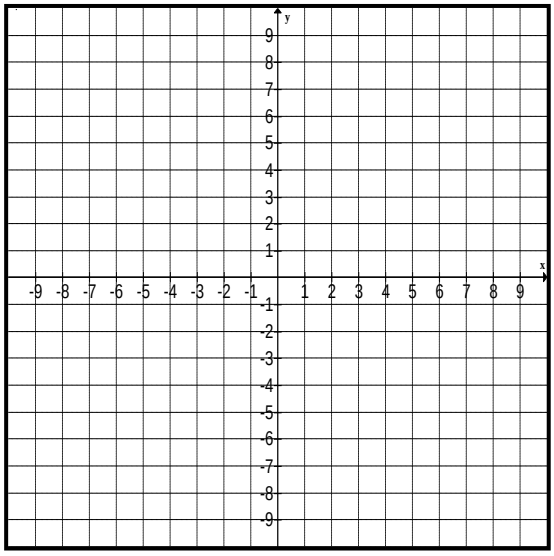
Focus: _____

Directrix: _____

Axis of Symmetry: _____

Domain: _____

Range: _____



7. The graph of $x = y^2$ is stretched by a scale factor of 4, translated right 6 units and down 3 units. Write the equation to represent the image of the graph after the translation in standard form.

8. Given the equation $(x-3)^2 = \frac{1}{8}(y-2)$, write the equation if it is reflected over the *x*-axis and translated up 3 units and translated left 2 units.

9. Determine the following conic section line(s) of symmetry. $(x-4) = (y+5)^2$
   A $x = 4$ only
   B $y = -5$ only
   C $x = 4, y = -5$
   D Infinite lines of symmetry

10. Parabolas have which of the following characteristics?
    I. Exactly 1 line of symmetry
    II. Exactly 2 lines of symmetry
    III. Created by the intersection of a cone and plane parallel to its base.
    IV. Created by the intersection of a cone and a plane perpendicular to its base.

    A I and III
    B II and III
    C I and IV
    D II and IV